

- 1) Landslides are one of the most widespread natural hazards on Earth, responsible for thousands of deaths and billions of dollars in property damage every year.
- 2) In U.S. alone landslides can occur in any state, and they cause an estimated \$2 billion in damages and 25–50 deaths each year (FEMA).
- 3) Rainfall is the primary causative factor.
- 4) Currently, no system exists at regional or global scale to detect heavy rainfall that may trigger landslides.

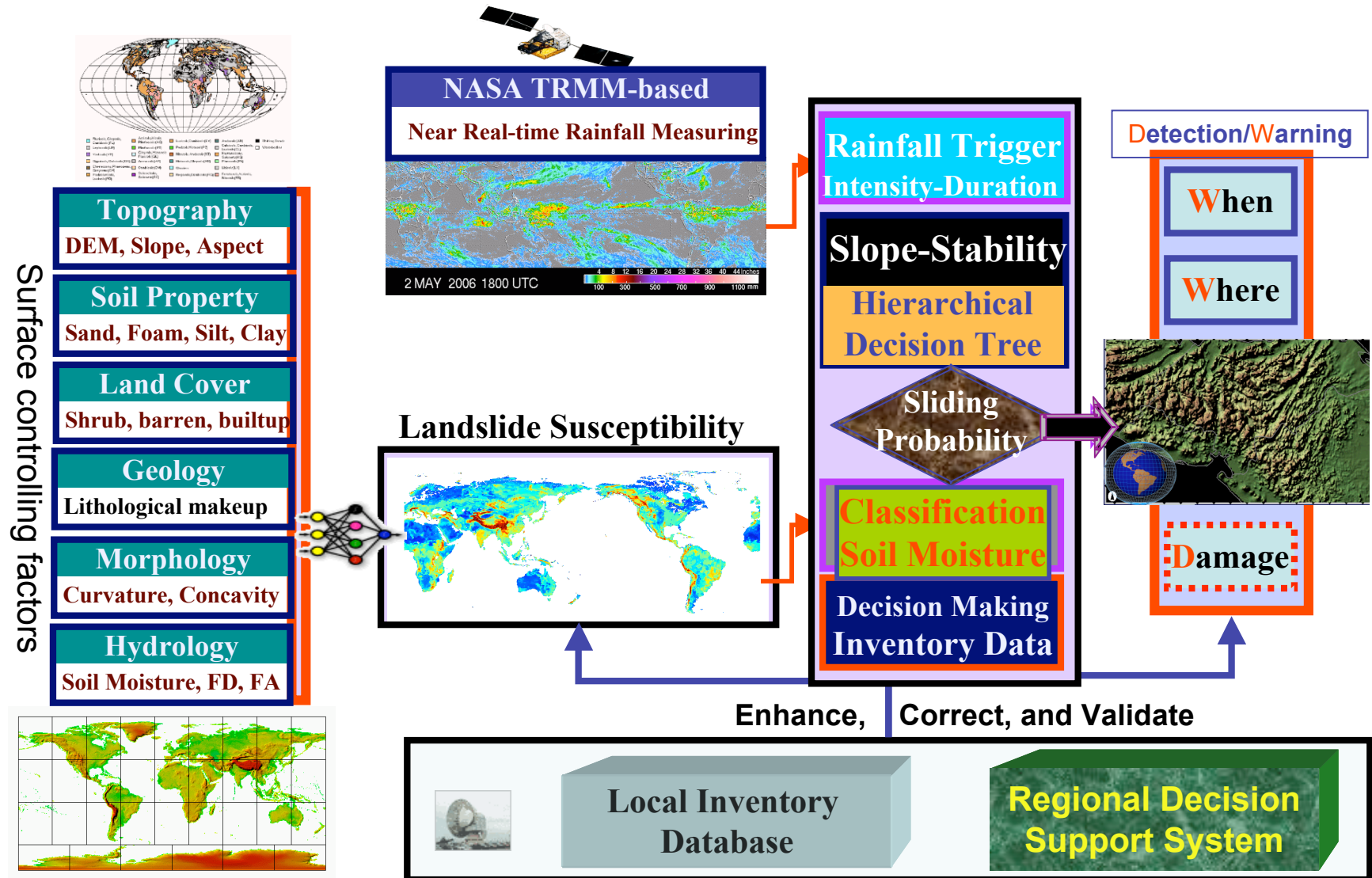
Landslides Death Toll

1962	Peru (Ancash)	5,000 death
1970	Peru (Ancash)	18,000 death
10/30/1998	Nicaragua	>2000 death
10/08/2005	Solola, Guatemala	>1800 death
2/17/2006	Layte, Philippines	buried entire village(1500)
1/10/2005	La Conchita, CA	12 death
01/04/2006	Jakarta, Indonesia	entire village

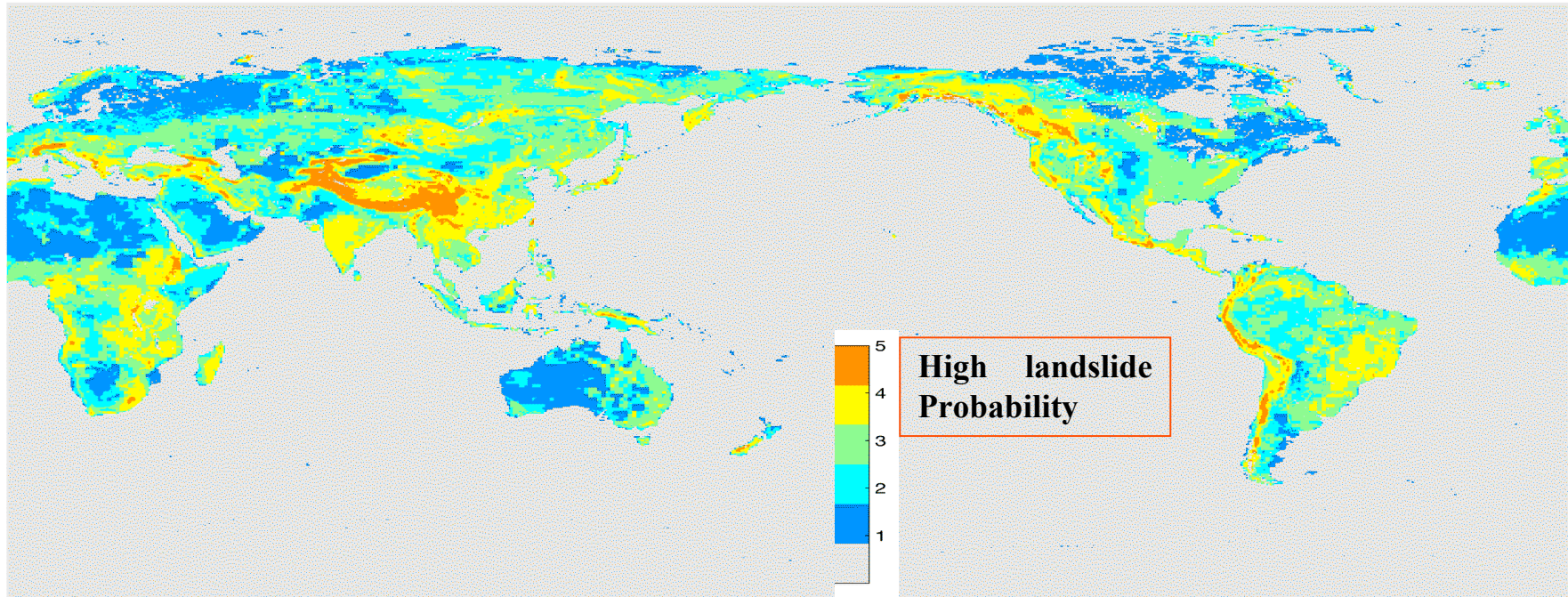


**Entire village buried.
Soldier dig out bodies**

Global Rainfall-induced Landslide Monitoring System



Global Landslide Hot Spots (warm color) Map Developed NASA GSFC

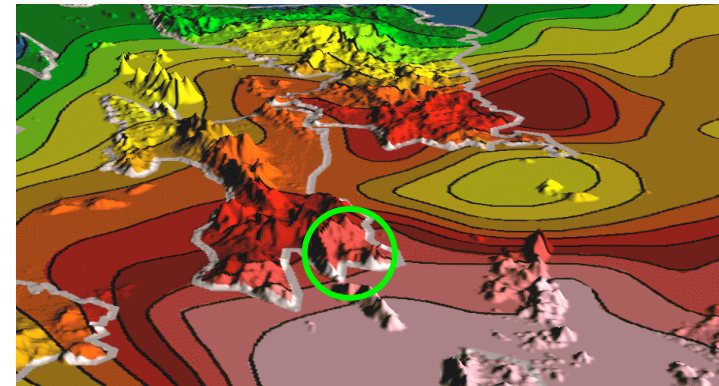
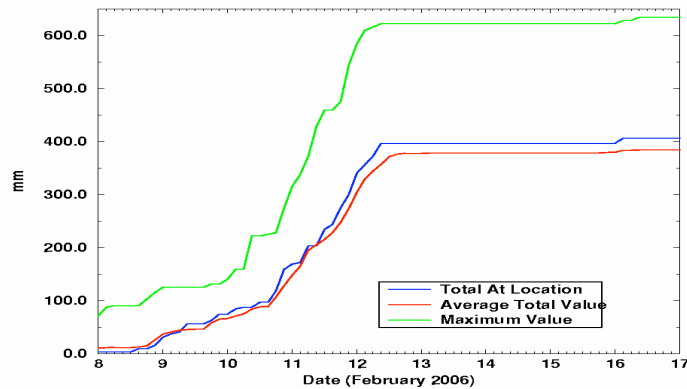


Philippines Landslide and TRMM Rainfall Accumulation

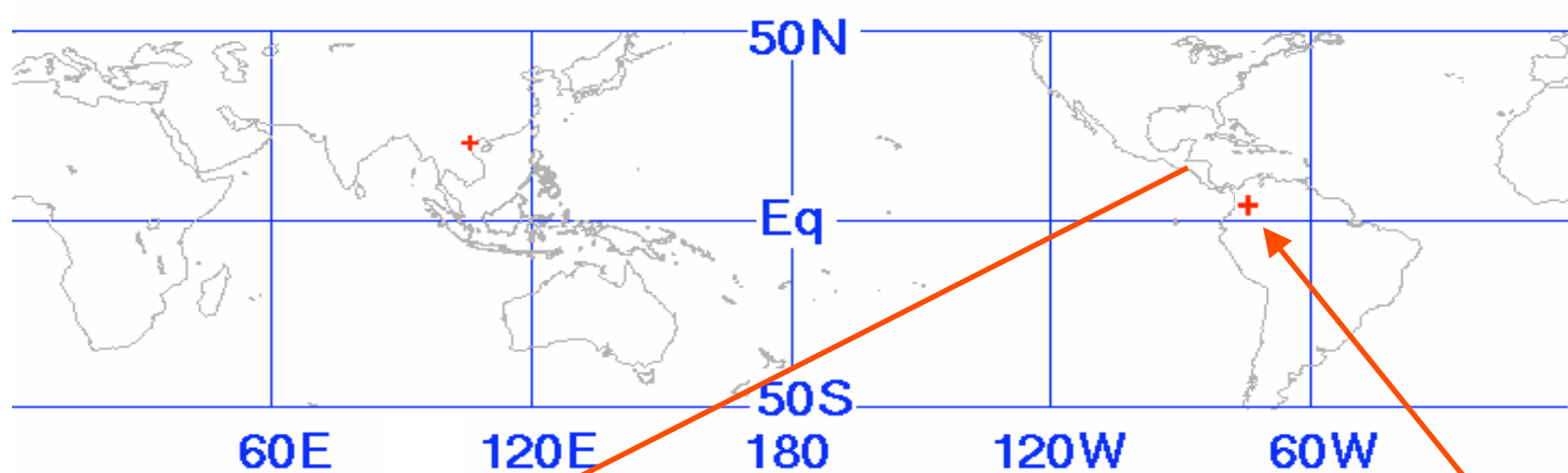
Rainfall Accumulation Near 10.43N 125E
634.4 mm=Maximum Within 100km

Philippines

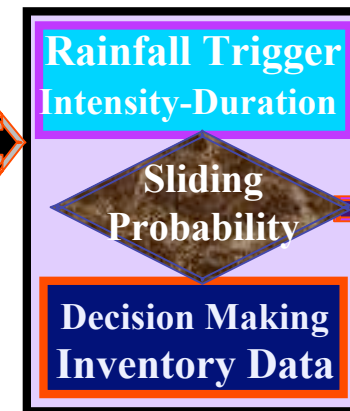
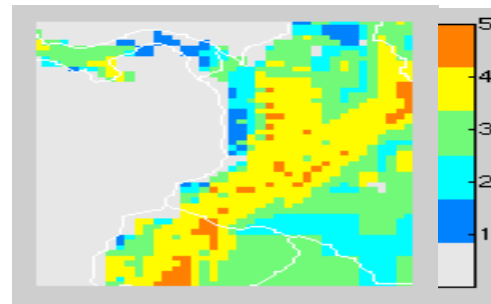
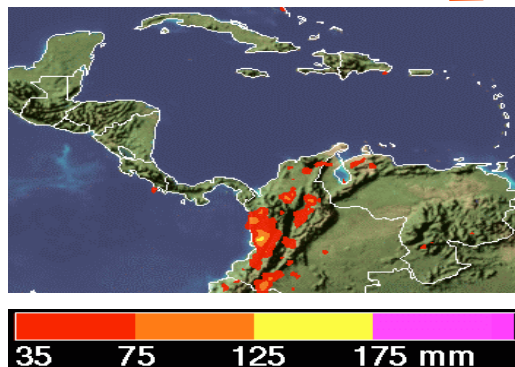
Feb 8-17, 2006



Near Real-time Global Rainfall-induced Landslide Monitoring/Warning System



Rainfall Map → Intensity-Duration → Susceptibility/ → Landslide Warning



Landslide Detection
When
Where

TRMM Near Real-Time Rainfall at location 76.875 W, 4.125 N

- 1) the last 24 hour rainfall accumulation > 103mm
- 2) The Susceptibility Map shows high or very high susceptibility

News Report: 13 Apr 2006, **At least 34 people missing in Colombian mudslide**